

REMARKS

In accordance with the foregoing, claims 27, 37, 39, 46 and 58 have been amended. Claims 27-29, 32, 34, 35, 37-52, 54 and 56-61 are pending and under consideration.

Claims 27, 29, 34, 35, 37-39, 42, 46, 47 and 52-56 are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 4,546,534 to Nicholas in view of U.S. Patent No. 3,495,324 to Guthrie et al. Dependent claims 28, 32, 40, 41, 43-45 and 48-51 are rejected in separate obviousness rejections, relying primarily upon Nicholas and Guthrie et al.

Nicholas discloses a method of forming a semiconductor device using first and second masking layers. The Examiner cites reference numerals 20 and 21 in Fig. 2 of Nicholas for the claimed metallization layers. As described at column 6, lines 3-6 of the reference, a conventional lithographic and etching treatment may be used to define the metal interconnection patterns 20, 21 and 22, which are formed on the thick oxide layer 15.

Independent claims 27 and 46 have been amended as follows:

27. (Currently Amended) A system comprising:
an electrical component provided with at least one electrical contact surface;
an electrical insulating layer, which is disposed on the component, the electrical insulating layer having an opening to expose and surround a portion of the contact surface, the insulating layer having a lateral surface that delimits the opening,; and
an electrical connecting lead for electrically contacting the contact surface of the component, the electrical connecting lead comprising first and second metallization layers, the first metallization layer being located on the lateral surface, such that the first metallization layer meets the contact surface at an angle less than 90 degrees, the second metallization layer being formed of a material different from the first metallization layer, the second metallization layer being formed directly on a portion of the first metallization layer, the second metallization layer being formed over the insulating layer and outside of the opening in the insulating layer, the second metallization layer having a thickness greater than that of the first metallization layer.

46. (Currently Amended) A method for producing a system comprising:
providing a component with an electrical contact surface;
producing an insulating layer on the component, the insulating layer having an opening to expose and surround a portion of the contact surface of the component so that the contact surface is freely accessible, the insulating layer having a lateral surface that defines the opening;
forming a metallization layer of a connecting lead on the lateral surface of the insulating layer in such a way that the metallization layer meets the contact surface at an angle less than 90 degrees;
after forming the metallization layer, masking the opening in the insulating layer; and
forming a section of the connecting lead separately from the metallization layer, the section of the connecting lead being produced on the insulating layer while the opening in the insulating layer is masked such that the section of the connecting lead is formed outside of the opening in the insulating layer, the section of the connecting lead being formed directly on a portion of the metallization layer and having a thickness which exceeds that of the metallization layer.

Antecedent support for the claims can be found in the original claims and paragraphs [0044], [0047] and [0051] of the application, for example. Although the claims are not limited to what is shown in the drawings, Fig. 8 shows one of many potential embodiments. In Fig. 8, a relatively thin metallization layer 30 formed on the power semiconductor component 2. An opening 42 in the insulating layer 4 is masked with a layer 37. Then a relatively thick metal layer 36 is formed outside of the opening 42 in the insulating layer 4. Nicholas discloses only a single metallic interconnection layer.

The Examiner cites Guthrie et al. for two different metallic elements. This reference discloses that the metallic layers are formed:

by consecutively evaporating layers of aluminum and copper on a major surface of the planar device, developing a photoresist mask on the copper exclusive of the region where the multilayer contact is to be formed, electroplating copper on the unmasked region, removing the photoresist and etching the evaporated copper and aluminum except in the region beneath the electroplated copper.

(See Abstract)

The Examiner asserts that layers 17 and 25 correspond with the second metallization layer (claim 27). The Examiner asserts that the first metallization layer corresponds with aluminum section 11 or 13. Independent claim 27 has been amended to recite that the second metallization layer is formed directly on a portion of the first metallization layer. If this language is interpreted narrowly, perhaps one could argue that the alloyed aluminum 11 is the first metallization, and the aluminum section 13 is the second metallization. However, claim 27 recites that the second metallization layer is formed outside the opening in the insulating layer. Aluminum section 13 is formed inside the opening in the oxide layer 12. Likewise, with a narrow interpretation, one could argue that the aluminum section 13 corresponds with the first metallization, and the aluminum section 16 corresponds with the second metallization. However again, the aluminum section 16 is formed inside the opening in the glass layer 14, whereas the claims require the second metallization to be formed outside the opening.

Perhaps one would broadly interpret the language that the second metallization layer is formed directly on a portion of the first metallization layer. In this case, perhaps one could argue that alloyed aluminum 11 corresponds with the first metallization and the metal sections 13, 16, 17 and 25 correspond with the second metallization. Although metal portions 16, 17 and 25 are outside of the opening in the oxide 12, aluminum section 13 is inside the opening in the oxide 12. Applicants submit there is no claim interpretation that would allow the alloyed aluminum 11

to correspond to the first metallization and allow only the aluminum section 16 to correspond with the second metallization.

Claim 46 contains different, but somewhat similar language. Claim 46 has been amended to recite that the section of the connecting lead is formed directly on a portion of the metallization layer.

Neither Guthrie et al. nor Nicholas disclose or suggest the features described above. The other references do not compensate for these deficiencies. Accordingly, it is submitted that independent claims 27 and 46, and the claims dependent thereon, patentably distinguish over the cited references. Therefore, the prior art rejections should be withdrawn.

Claim 58 is rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,284,563 to Fjelstad. Claims 59-61 are rejected as being obvious over Fjelstad in view of additional references.

Independent claim 58 is directed to first and second partial insulating layers. These partial insulating layers form an insulating layer having an opening to expose and surround a portion of an electrical contact surface. Referring to Figs. 1A-1E of Fjelstad, the Examiner argues that the component 110 has an electrical contact surface. The Examiner argues that the compliant layer 140 corresponds with the second partial insulating layer. However, the compliant layer 140 is formed on only one side of the contact surface 110. Claim 58 has been amended to very clearly recite that the second partial insulating layer surrounds the portion of the contact surface. Neither Fjelstad nor the other references disclose or suggest a second partial insulating layer that surrounds a portion of a contact surface. For this reason, the prior art rejections should be withdrawn.

The Examiner kindly discussed the application and the foregoing claim amendments with the undersigned. The Examiner's time and understanding is acknowledged and gratefully appreciated.

There being no further outstanding objections or rejections, it is submitted the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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